UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/780,662 | 02/19/2004 | Michael A. Butkus | 991342 | 4577 |

7590 03/28/2005

United States Army Legal Services Agency
Suite 527
901 North Stuart Street
Arlington, VA 22203-1837

| EXAMINER | |
|---|---|
| HOEY, BETSEY MORRISON | |
| ART UNIT | PAPER NUMBER |
| 1724 | |

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/780,662 | BUTKUS ET AL. | |
| | Examiner | Art Unit | |
| | Betsey M Hoey | 1724 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/19/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claim 16 is objected to because of the following informalities: line 1 recites "ions is are". Appropriate correction is required.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,495,052 to Miyamoto et al. Miyamoto et al. teach a method for treatment of drinking water comprising subjecting the water to ultraviolet radiation, then adding a bactericide that releases silver ions into the water, and then removing silver ions to a biologically acceptable amount for human consumption using an ion exchange resin.

4. Claims 1, 2, 3, 16, 17, 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,236,595 to Wang et al. Wang et al. teach a method for removing contaminants from liquid comprising disinfecting the contaminated liquid by ultraviolet pretreatment; passing the liquid through a silver impregnated GAC filter, which slowly releases silver ions into the liquid; and passing the liquid through ultraviolet post-treatment means. Wang et al. teach that their method may be used to treat a variety of waters, including wastewater or household tap water. Wang et al. do not teach a step of removing silver ions from the treated water, and therefore silver ions are left in the water treated by the method of Wang et al.

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,267,895 to Engelhard et al. Referring to Figure 8, Engelhard et al. teach a method for treating dental water comprising destructing microbes with ultraviolet radiation, followed by dissolving silver into the water as it passes through a silver containing cartridge.

6. Claims 1, 2, 16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,156,210 to Sadkhin. Sadkhin teaches a method for treating water so that it is potable and suitable for drinking. The method comprises a step of ultraviolet radiation of the water to destroy bacteria, and a step of adding silver ions to the treated water prior to delivery to a user. Silver ions are not removed from the treated water in the method of Sadkhin.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. or Sadkhin as applied to claim 2 above, and further in view of U.S. Patent No. 6,565,803 to Bolton et al. Miyamoto et al. and Sadkhin disclose the methods described above, wherein water is treated to remove bacteria and viruses. The claim differs from Miyamoto et al. and Sadkhin by reciting that the ultraviolet light has a specific fluence. Bolton et al. disclose a method for inactivating Cryptosporidium and similar organisms in water, comprising irradiating the water with ultraviolet light in doses from about 1-175

$mJ/cm^2$. Bolton et al. disclose that this fluence is effective to inactivate the DNA of the organisms to prevent infection. Since Cryptosporidium has been a concern in drinking water, and since Miyamoto et al. and Sadkhin are concerned with removing organisms from water which may be used for human consumption, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have practiced the step of radiating water with ultraviolet radiation in the methods of Miyamoto et al. or Sadkhin within the fluence range recited in claim 4, in view of Bolton et al., in order to effectively inactivate Cryptosporidium in water for consumption.

9. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claims 2 and 3 above, and further in view of Bolton et al. Wang et al. disclose the method described above, wherein water, such as household tap water, is treated to remove contaminants. The claims differ from Wang et al. by reciting that the ultraviolet light has a specific fluence. Bolton et al. disclose a method for inactivating Cryptosporidium and similar organisms in water, comprising irradiating the water with ultraviolet light in doses from about 1-175 $mJ/cm^2$. Bolton et al. disclose that this fluence is effective to inactivate the DNA of the organisms to prevent infection. Since Cryptosporidium has been a concern in household tap water, and since Wang et al. are concerned with removing contaminants from water which may be used for drinking, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have practiced the steps of irradiating water with ultraviolet radiation in the method of Wang et al. within the fluence range recited in

claims 4 and 5, in view of Bolton et al., in order to effectively inactivate Cryptosporidium in household tap water that is used for drinking.

10. Claims 6, 8, 10 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. or Sadkhin as applied to claim 2 above, and further in view of U.S. Patent No. 6,602,425 to Gadgil et al. Miyamoto et al. and Sadkhin disclose the methods described above. The claims differ from Miyamoto et al. and Sadkhin by reciting a specific wavelength of ultraviolet light (claims 6 and 8) and a specific type of ultraviolet lamp (claims 10 and 11). Gadgil et al. disclose a method for disinfecting water using ultraviolet energy, comprising using either a low or medium pressure mercury lamp, and irradiation the water at an ultraviolet light wavelength of 254 nm. Gadgil et al. disclose that this type of lamp and wavelength provide sufficient disinfection for drinking water. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have practiced the ultraviolet radiation step of the method of Miyamoto et al. or the method of Sadkhin with the type of lamp recited in claim 10 or 11, at a wavelength recited in claim 6 or 8, in view of Gadgil et al., in order to effectively disinfect drinking water.

11. Claims 6-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claims 2 and 3 above, and further in view of Gadgil et al. Wang et al. disclose the method described above. The claims differ from Miyamoto et al. by reciting a specific wavelength of ultraviolet light (claims 6-9) and a specific type of ultraviolet lamp (claims 10-13). Gadgil et al. disclose a method for disinfecting water using ultraviolet energy, comprising using either a low or medium pressure mercury lamp, and

irradiation the water at an ultraviolet light wavelength of 254 nm. Gadgil et al. disclose that this type of lamp and wavelength provide sufficient disinfection for drinking water. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have practiced the ultraviolet radiation steps of the method of Wang et al. with a type of lamp recited in claims 10-13, at a wavelength recited in claims 6-9, in view of Gadgil et al., in order to effectively disinfect drinking water.

12. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claims 2 and 3 above, and further in view of U.S. Patent No. 5,342,528 to Adachi et al. Wang et al. disclose the method for treating water described above. The claims differ from Wang et al. by reciting that the silver ions are present as silver nitrate. Adachi et al. disclose a process for purifying water comprising passing the water through activated carbon having silver ions, which is also a step of the method of Wang et al. Adachi et al. disclose that silver nitrate may be impregnated into the activated carbon to effectively purify the water being treated. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have used silver nitrate as the silver compound impregnated into the GAC filter of Wang et al., in view of Adachi et al., in order to effectively purify the water being treated.

13. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claims 2 and 3 above, and further in view of Miyamoto et al. Wang et al. disclose the method for treating water described above. The claims differ

from Wang et al. by reciting that silver ions are removed from the treated water. Miyamoto et al. teach a method for treatment of drinking water described above, including a step of removing silver ions to a biologically acceptable amount for human consumption. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to have removed silver ions from the treated water of Wang et al. when the water is intended for drinking, in view of Miyamoto et al., so that the water is acceptable for human consumption.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsey Hoey whose telephone number is **(571) 272-1158**. The examiner can normally be reached on Mondays, Tuesdays, and Thursdays. The examiner's supervisor, Mr. Duane Smith, may be reached at (571) 272-1166. Any inquiry of general nature may be directed to the Group receptionist at (571) 272-0987. The centralized fax number for the Group is (703) 872-9306. The examiner Rightfax number is (571) 273-1158.

Betsey M. Hoey

BETSEY MORRISON HOEY
PRIMARY EXAMINER

March 22, 2005